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THE GENUS *CHOISYA*

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The genus *Choisya* is a member of the Rutaceae, whose species, hitherto considered to number only two,* are confined to Mexico and the southwestern United States. One of them, *C. ternata*, occurs in central and southern Mexico, while the other, *C. dumosa*, has included plants of local occurrence in the low arid mountain ranges of northeastern Mexico, extreme western Texas, southern New Mexico, and southeastern Arizona.

The writer recently had occasion to determine a plant of this genus from the State of Coahuila, Mexico. It was obviously related to *Choisya dumosa*; but it came from a locality far removed from the previously known range of that species, and differentiating characters were at once apparent. Careful inspection of the material in the U. S. National Herbarium under cover of *C. dumosa* soon convinced the writer that there were here represented three distinct types, besides the one from Coahuila. The four species of the *dumosa* group to be described have widely separated ranges, so far as known, there being some uncertainty as to the locality from which one of them comes. All except one are known from incomplete material, and it is to be hoped that, when flowers and fruit of all have been collected, additional distinguishing characters may be found.

KEY TO THE SPECIES.

Leaflets 3, oblong to obovate, 5-30 mm. broad. 1. *C. ternata*.
Leaflets linear, 1-4 mm. broad.

Pubescence of the pedicels consisting of minute, appressed hairs.

* Percy Wilson, N. Amer. Fl. **25**: 205. 1911.

Leaflets usually 3-5, rarely 6-7, commonly 2.7-5 cm. long; petioles one-third as long as the leaflets or shorter. . . . 2. *C. arizonica*.

Leaflets usually 8-13, rarely 6 or 7, 1-4 cm. long; petioles always more than half as long as the leaflets, often equaling them.

3. *C. dumosa*.

Pubescence of the pedicels consisting of slender, spreading hairs.

Leaflets 3-5, 2-4 mm. wide, conspicuously broadest at or above the middle, the margins plane or nearly so, repand-denticulate.

4. *C. mollis*.

Leaflets usually 7-11, rarely 5, 1.3 mm. wide or narrower, of uniform width throughout, the margins strongly revolute, entire or nearly so. 5. *C. palmeri*.

1. ***Choisya ternata*** H. B. K. Nov. Gen. & Sp. 6: 6. 1823.

Juliania caryophyllata Llave & Lex. Nov. Veg. Descr. 2: 4. 1825.

Choisya grandiflora Regel, Gartenfl. 25: 257. 1876.

This is the type of the genus *Choisya*. In general appearance it is unlike *C. dumosa* and its allies, and there are slight differences in the flowers. For that reason Doctor Torrey formed a new genus, *Astrophyllum*, for the plant here called *Choisya dumosa*. Doctor Engler, in *Natürlichen Pflanzenfamilien** maintained both genera, but Mr. Wilson† united them. Unfortunately the fruit of *Choisya ternata* is not known; when it is secured it may be found that the genus *Astrophyllum* is valid.

There are only two specimens of *C. ternata* in the U. S. National Herbarium, one from the Cerro de Matzize, Puebla, Mexico, and one collected by Schiede from cultivated plants. The two exhibit many differences in leaf form, but without ampler material it does not seem practicable to attempt a segregation.

2. ***Choisya arizonica*** Standley, sp. nov.

Branches blackish, the branchlets green, bearing numerous coarse elevated glands, densely pubescent with minute, closely appressed hairs; petioles stout, one-fifth to one-third as long as the leaflets, minutely appressed-pubescent; leaflets usually 3 or 5, rarely 6 or 7, linear, of nearly uniform width throughout, commonly 2.7-5 cm. long, 2-2.5 mm. wide, rounded or truncate at the apex, glabrous, or minutely appressed-pubescent on the upper surface, the margins slightly revolute, shallowly crenulate; pedicels 1.2-2 cm. long, minutely appressed-pubescent; sepals obtuse, ciliate and minutely and sparsely pubescent; petals 1 cm. long; style and ovary densely pubescent; fruit not known.

Type in the U. S. National Herbarium, no. 15,060, collected on limestone ledges of the Santa Rita Mountains, Arizona, at an altitude of 1350 meters, May 16, 1884, by C. G. Pringle. Also collected in the Mule Mountains, Arizona, July 20, 1894, by J. W. Toumey.

This appears to differ sufficiently from *C. dumosa* to receive specific

* 3^d: 125. 1896.

† N. Amer. Fl. 25: 205. 1911.

recognition, the distinguishing marks being the few, elongate leaflets and very short petioles. The two Arizonian specimens are exactly alike, and come from a region considerably removed from that in which *C. dumosa* is known to occur.

3. ***Choisya dumosa*** (Torr.) A. Gray, Proc. Amer. Acad. **23**: 224. 1888.
Astrophyllum dumosum Torr. U. S. Expl. Miss. Pacif. **22**: 161. 1854.

Branchlets bearing numerous coarse, slightly elevated glands, densely pubescent with minute, mostly appressed hairs; petioles stout, densely glandular, always more than half as long as the leaflets and often equaling them; leaflets commonly 8–13, rarely 6 or 7, 1–3 or rarely 4 cm. long, of nearly uniform width throughout, glabrous, or sparsely pubescent with very minute, appressed hairs on the upper surface, the margins slightly revolute, remotely crenulate; sepals obtuse, truncate, or retuse, ciliate; petals 7–8 mm. long; capsule 6 mm. high, copiously pubescent with slender, appressed or slightly spreading hairs.

Guadalupe Mountains of western Texas (V. Havard, Agnes Chase), to southern New Mexico (San Andreas Mountains, J. H. Gaut 37, Pope Exped., E. O. Wootton), and northern Chihuahua (Bigelow).

The specimens upon which this species was based were said to have come from the Organ Mountains, New Mexico; probably they came instead from the San Andreas Range, which lies just to the north of the Organs and is separated from them only by a high pass. Capt. Pope's expedition is known to have followed the road which leads over the pass.

The shrub is often abundant, but it is known to occur in only a few localities, in all of which conditions are similar. The Mexican name is given as *sorillo*, a term which is applied to other members of the family, as for instance, to a species of *Xanthoxylum* in Sinaloa and Tepic, Mexico.

4. ***Choisya mollis*** Standley, sp. nov.

Branchlets stout, bearing numerous low glands, densely pubescent with slender spreading hairs; petioles one-fifth to one-third as long as the leaflets, densely hirtellous; leaflets 3–5, 1.2–4 cm. long, 2–4 mm. wide, conspicuously widest at or above the middle, narrowed toward the base, rounded at the apex and often emarginate, densely hirtellous, the margins usually plane, broadly repand-denticulate, the lateral leaflets often much reduced; pedicels 1–1.5 cm. long, densely hirtellous; ovary densely hirsute; flowers and fruit not seen.

Type in the U. S. National Herbarium, no. 15,062, collected by the Mexican Boundary Survey, no. 146. On the same sheet are two branches of *C. dumosa*, distributed under the same number. According to the Botany of the Mexican Boundary Survey,* this number doubtless includes specimens from northern Chihuahua and others from the "western slope of the Sierra del Pajarito, Sonora." It is probable that the type of *C. mollis* is from the latter locality.

* Page 42.

Although based upon scanty material, the proposed species seems distinct by reason of the few broad leaflets, with denticulate margins, and the longer, spreading pubescence.

5. ***Choisya palmeri*** Standley, sp. nov.

Branches stout, grayish or yellowish, the branchlets rather slender, densely short-hirtellous, bearing few, minute, scarcely elevated glands; petioles half as long as the leaflets or longer, often equaling them, finely hirtellous; leaflets usually 7-11, rarely 5, 6-17 mm. long, 1-1.3 mm. wide, of uniform width throughout, densely short-hirtellous, rounded at the apex, the margins strongly revolute, entire or nearly so; pedicels 1.2-2.3 cm. long, finely hirtellous; capsules 5-6 mm. high, copiously glandular, densely hirtellous; seeds 4-5 mm. long, dark brown, shining.

Type in the U. S. National Herbarium, no. 570,236, collected at Chojo Grande, 27 miles southeast of Saltillo, Coahuila, Mexico, July 16, 1905, by Dr. Edward Palmer (no. 715). Also collected on Pico de Teira, Zacatecas, May 17, 1908, by F. E. Lloyd (no. 223).

Amplly distinct in the short, strongly revolute leaflets and the spreading pubescence. The glands are smaller and less conspicuous than in any other specimens examined.